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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,597	04/09/2001	Zheng Xin Dong	00537-169002	1308

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EXAMINER	
WEGERT, SANDRA L	
ART UNIT	PAPER NUMBER
1647	

MAIL DATE	DELIVERY MODE
11/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/674,597	DONG ET AL.	
	Examiner	Art Unit	
	SANDRA WEGERT	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11 and 52-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11,52 and 53* is/are allowed.

6)☒ Claim(s) *54 and 55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application, Amendments, and/or Claims

The amendment and Remarks, filed 4 August 2008, have been entered and considered. Claims 54 and 55 are amended.

Claims 11 and 52-55 are under examination.

Withdrawn Objections and/or Rejections

Claim Rejections-35 *USC § 112, first paragraph - Lack of Enablement*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> **The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.**

The rejection of claim 54 under 35 U.S.C. § 112, first paragraph, for total lack of enablement, is *withdrawn* based on applicants' amendments (4 August 2008). This claim is now rejected under 35 U.S.C. § 112, first paragraph, for improper breadth (see below).

Maintained/New Objections and/or Rejections

Claim Rejections- 35 U.S.C. § 112, first paragraph, Breadth

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> **The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.**

Claim 54 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of inhibiting the activation of the PTH2 receptor using the PTH analogue of SEQ ID NO: 16 *in vitro*, does not reasonably provide enablement for inhibiting the activation of the PTH2 receptor *in vivo*. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with this claim.

The claim reads on a method for inhibiting the activation of the PTH2 receptor by adding analogues based on the modified peptide of SEQ ID NO: 16, without specifying that the PTH2 receptor is part of a cell-based system, rather than, for example, comprising a multicellular animal or human being. The specification teaches contacting cultured HEK/C21, Saos-2/B-10, or HEK/BP-16 cells with PTH2-specific short peptides, such as the Cha (7, 11) analogue of SEQ ID NO: 16, and measuring the resultant production of second-messengers (Specification pp. 21-23). However, the instant specification gives no guidance as to how to use the products of the invention in anything other than a HEK/C21, Saos-2/B-10, or HEK/BP-16 cell culture, such as, for example, administered to an animal or human for treatment.

Claim Rejections - 35 USC § 112, First Paragraph - Enablement.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> **The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.**

The rejection of claim 55 under 35 U.S.C. 112, first paragraph, for lack of enablement is

maintained. This rejection was made in the last Office action (2 April 2008) because the subject matter was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention. The specification is not enabling for the limitations of the claims wherein a medical disorder is treated using the PTH2 analogue of SEQ ID NO: 16 or its related analogues.

Claim 55 reads on a method of treating a patient afflicted with a medical disorder that is a result of altered or excessive action of the PTH2 receptor. Claim 55 recites the conditions: "abnormal CNS functions or abnormal pancreatic functions" as those presumably enabled by the claimed method.

The specification discloses experiments in which muteins of a PTH2 ligand were tested in art-recognized cellular stimulation assays (Specification, p. 22, for example). In addition, recent published research by the inventors shows that the variants work well in *in vitro* assays of cell function (see Chorev, et al, 2002, Biochemistry, 29: 1580-1586, of record).

However, the claims read on a method of treating patients for diseases related to abnormal function of the PTH2 receptor, such as CNS functions and abnormal pancreatic functions, by administering the recited variants of PTH when in fact, no in vivo tests were performed and no patients or animals were administered the peptides. Furthermore, there was no nexus established by the Disclosure as to the connection between the cellular data presented and the underlying mechanisms of any diseases. While it is true that others have established that the PTH2 receptor is distinct from the PTH receptor and that it occurs in the brain and kidneys, among other places, the literature is silent as to a specific and substantial function for the PTH2 receptor. Usdin, et al, for example has localized PTH2 receptors to specific areas of the brain

and spinal cord, and have recently discovered the endogenous ligand for the receptor (Usdin, et al, 2003, TRENDS in Endocrinology and Metabolism, 14(1): 14-19). However, even that research group admits:

"Studies have not yet been performed to evaluate TIP39 function in many brain areas that contain PTH2 receptors and are potentially innervated by TIP39 neurons" (p. 18, under the heading: *The future of TIP39*).

The researchers describe the locations of the PTH2 receptor in parts of the brain involved in hypothalamic function, and in areas that may be involved in the processing of pain information, but then conclude by saying that they can only now guess at its function within the organism. Nonetheless, Usdin, et al, have provided more information about the PTH2 receptor than the instant application in which:

"The physiological function of the PTH2 receptor because of its high abundance and distribution in the brain suggests that it may act as a neurotransmitter receptor" (Specification, p. 4, line 4, emphasis added).

Not only do applicants not know the specific function of the PTH2 receptor, but in the case of claims encompassing medical treatments, additional enabling experiments are needed to confirm that the receptor-specific analogues can be administered such that a medical disorder may be treated. In addition, a method of treatment requires definition of the disorder being treated, in order that the method can be evaluated as to whether it is appropriate for treating the specific disease, as well as whether it is enabled. Arguing that the examiner must prove that a treatment "does not involve the PTH2 receptor" (Remarks, p. 6, 20 August 2008), necessarily requires applicants to define the disorder being examined in order that such an analysis can be made. The courts have stated that patent protection is granted in return for an enabling

disclosure, not for vague intimations of general ideas that may or may not be patentable. Tossing out the mere germ of an idea does not constitute an enabling disclosure. Reasonable detail must be provided in order to enable members of the public to understand and carry out the invention. See *Genentech v. Novo Nordick A/S* (CAFC) 42 USPQ2d 1001 (1997).

Proper analysis of the Wands factors was provided in the previous Office Action (2 April 2008). Due to the large quantity of experimentation necessary to enable a method of treating a medical disorder in a patient by administering analogues of PTH, such as SEQ ID NO: 16, the lack of direction/guidance presented in the specification regarding the same, the absence of working examples directed to the same, the lack of example from the literature that would associate a medical disorder with PTH2, and the complex nature of the invention-undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

Conclusion

Claims 11, 52 and 53 are allowed. Claims 54 and 55 are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Advisory information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra Wegert whose telephone number is (571) 272-0895. The examiner can normally be reached Monday - Friday from 9:00 AM to 5:00 PM (Eastern Time). If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Manjunath Rao, can be reached at (571) 272-0939.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (in USA or CANADA) or 571-272-1000.

/SLW/
12 November 2008

/Elizabeth C. Kemmerer/
Elizabeth C. Kemmerer, Ph.D.
Primary Examiner, Art Unit 1646